



Annual Report of Operations for Year 2021

To comply with NPDES General Permit No. WAG130000 for Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country within the Boundaries of the State of Washington

NPDES # for your Facility:

WAG 130008

Facility & Owner Information

Facility Name: <u>WINTHROP NATIONAL FISH HATCHERY</u>	
Operator Name (Permittee): <u>UNITED STATES FISH & WILDLIFE SERVICE</u>	
Address: <u>PHYSICAL - 453A TWIN LAKES RD, WINTHROP WA 98862</u> <u>MAILING - PO BOX 429, WINTHROP WA 98862</u>	
Email: <u>sara-reese@fws.gov; chris-pasley@fws.gov</u>	Phone: <u>509.996.2424</u>
Owner Name (if different from operator):	
Email:	Phone:

Best Management Practices (BMP) Plan

Has the BMP Plan been reviewed this year? ☒ Yes ☐ No

Does the BMP Plan fulfill the requirements of the General Permit? ☒ Yes ☐ No

Summarize any changes to the BMP Plan since the last annual report. Attach additional pages if necessary.

Operations and Production

Total harvestable weight produced in the past calendar year in pounds (lbs): 84,966 lbs.
Pounds of food fed to fish during the maximum month: 10,597 (March)

List the species grown or held at your facility and the annual production of each in gross harvestable weight. If fish were released rather than harvested, list the weight at time of release.

Species	Fish Produced	Receiving Water(s) to which Fish were Released	Month Released/Spawned
Coho salmon	17,884	Methow River	March & May
Spring chinook	24,678	Methow River	April
Summer steelhead	42,404	Methow & Twisp Rivers Spectacle Lake	April & May September

Fill in the table below with production numbers from the past year. List the **maximum** amount of fish on-site and the maximum amount of food fed **per month**.

Month	Total Fish (lbs)	Fish Feed (lbs)	Month	Total Fish (lbs)	Fish Feed (lbs)
January	62,265	2,589	July	21,650	7,293
February	65,749	3,605	August	32,441	9,034
March	69,942	10,597	September	42,116	10,436
April	43,120	6,009	October	52,213	7,806
May	8,570	2,277	November	57,850	4,532
June	13,413	4,247	December	58,417	1,746

Additional Comments:

Releases that occurred in May for summer steelhead and coho salmon were volitional releases (fish may leave over a several week period). Maximum fish present in May represents fish that are not part of the volitional release, as there is no way to accurately quantify how many of these fish are still present in the raceways.

Non-migrant steelhead were trucked to Spectacle Lake in Okanogan County in September.

Solid Waste Disposal

Describe the solid waste disposed of during the calendar year (including fish mortalities).

Type of Solid Disposed	Date Disposed	Location Disposed
Daily fish mortalities	Daily	Buried in station mort pit
Spanned adult carcasses	Weekly in October & November	Buried in station mort pit
Dead fish eggs	June, October, & December	Buried in station mort pit
Additional Comments:		

Fish Mortalities

Include a description and the dates of mass mortalities in the past year (more than 5% per week). Attach additional pages, if necessary. Include total mortalities from all causes.

Date	Cause of Deaths	Steps Taken to Correct Problem	Pounds of Fish
None			
Additional Comments:			

Noncompliance Summary

Include a description and the dates of noncompliance events (including spills), the reasons for the incidents, and the steps taken to correct the problems. Attach additional pages, if necessary.

None

Inspections & Repairs for Production & Wastewater Treatment Systems

Date Inspected	Date Repaired	Description of System Inspected and/or Repaired	
None —			

Aquaculture Drugs and Chemicals

Please indicate whether you used each drug/chemical **during the past calendar year**.
Describe the use of each drug/chemical in more detail on the following pages.

Used in the past year?	Drug or Chemical
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Azithromycin
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Chloramine-T: <i>See additional reporting requirements on page 7</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Chlorine
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Draxxin
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Erythromycin - injectable
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Erythromycin - medicated feed
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Florfenicol (Aquaflor)
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Formalin - 37% formaldehyde: <i>See additional reporting requirements on page 7</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Herbicide - describe:
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hormone - describe: LHRH
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydrogen Peroxide: <i>See additional reporting requirements on page 7</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Iodine: <i>See additional reporting requirements on page 7</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Oxytetracycline
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Potassium Permanganate: <i>See additional reporting requirements on page 7</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Romet
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SLICE (emamectin benzoate)
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sodium Chloride - salt
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Vibrio vaccine
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other: AQUIS 20E

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other: AQUADES
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Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: AQUI-S 20E		Generic Name: AQUI-S 20E (10% Eugenol)	
Reason for use: Safe and effective handling of adult summer steelhead			
<input type="checkbox"/> Preventative/Prophylactic <input checked="" type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): 15 mL	Total quantity of formulated product used in past year (specify units): 510 mL	
Date(s) of treatment: 02/02/2021 → 04/15/2021		Total number of treatments in past year: 34	
Maximum daily volume of treated water: 20 gallons	Treatment concentration (specify units): 19.7 ppm	Duration and frequency of treatment(s): Used as needed length varied by # of fish handled	
Method of application:	<input checked="" type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin	<input checked="" type="checkbox"/> Other (describe): Large cooler
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works	<input type="checkbox"/> Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name: AQUADES		Generic Name: peracetic acid	
Reason for use: Disinfection of adult holding ponds			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment: 55 gallons	Total quantity of formulated product used in past year (specify units): 55 gallons	
Date(s) of treatment: 05/24/2021		Total number of treatments in past year: 1	
Maximum daily volume of treated water: 80,000 gallons	Treatment concentration (specify units): 36.3 ppm	Duration and frequency of treatment(s): 1 time per year 20 hours	
Method of application:	<input checked="" type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input checked="" type="checkbox"/> Raceways Adult holding area <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin	<input type="checkbox"/> Other (describe):
Where did water treated with this chemical go? (check all that apply):	<input checked="" type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works	<input type="checkbox"/> Other (describe):

Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:

length of static bath allowed peracetic acid to break down.

Test strips verified that product had degraded.

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: <u>parasite-S</u>		Generic Name: <u>Formalin (37% Formaldehyde)</u>	
Reason for use: <u>Inhibit fungal growth on adult broodstock</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): <u>3.6 gallons</u>	Total quantity of formulated product used in past year (specify units): <u>320.4 gallons</u>	
Date(s) of treatment: <u>03/08/21 → 05/17/21 09/30/21 → 11/15/21</u> <u>06/04/21 → 08/30/21</u>			Total number of treatments in past year: <u>89</u>
Maximum daily volume of treated water: <u>18,000 gallons</u>	Treatment concentration (specify units): <u>199.2 ppm</u>	Duration and frequency of treatment(s): <u>1 hour, 3 days per week</u>	
Method of application:	<input type="checkbox"/> Static Bath <input checked="" type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input checked="" type="checkbox"/> Raceways <u>adult holding</u> <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input checked="" type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name: <u>Florfenicol (Aquaflor)</u>		Generic Name: <u>Florfenicol</u>	
Reason for use: <u>Flavobacterium psychrophilum in steelhead juveniles</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment: <u>0.198 kg</u>	Total quantity of formulated product used in past year (specify units): <u>0.198 kg</u>	
Date(s) of treatment: <u>04/02/21 → 04/11/21</u>			Total number of treatments in past year: <u>1</u>
Maximum daily volume of treated water: <u>0 gallons</u>	Treatment concentration (specify units): <u>15 mg/kg body wt/day</u>	Duration and frequency of treatment(s): <u>10 consecutive days</u>	
Method of application:	<input type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input checked="" type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input checked="" type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe): <u>N/A</u>	

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: <u>Florfenicol (Aquaflor)</u>		Generic Name: <u>Florfenicol</u>	
Reason for use: <u>Flavobacterium psychrophilum in coho juveniles</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): <u>0.132 kg</u>	Total quantity of formulated product used in past year (specify units): <u>0.132 kg</u>	
Date(s) of treatment: <u>04/27/21 - 05/06/21</u>			Total number of treatments in past year: <u>1</u>
Maximum daily volume of treated water: <u>0 gallons</u>	Treatment concentration (specify units): <u>15 mg/kg body wt/day</u>	Duration and frequency of treatment(s): <u>10 consecutive days</u>	
Method of application:	<input type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input checked="" type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input checked="" type="checkbox"/> Incubation building <u>tanks</u>	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin	<input type="checkbox"/> Other (describe):
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works	<input type="checkbox"/> Other (describe): <u>N/A</u>
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name: <u>American Stockman Mixing salt</u>		Generic Name: <u>Salt</u>	
Reason for use: <u>Costia on coho salmon fry</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment: <u>8.1 lbs</u>	Total quantity of formulated product used in past year (specify units): <u>16.2 lbs</u>	
Date(s) of treatment: <u>4/14 and 4/15/21</u>			Total number of treatments in past year: <u>2</u>
Maximum daily volume of treated water: <u>1.26 m³</u>	Treatment concentration (specify units): <u>0.003%</u>	Duration and frequency of treatment(s): <u>1 hour</u>	
Method of application:	<input checked="" type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input checked="" type="checkbox"/> Incubation building <u>tanks</u>	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin	<input type="checkbox"/> Other (describe):
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works	<input type="checkbox"/> Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: <u>parasite-S</u>		Generic Name: <u>Formalin (37% Formaldehyde)</u>	
Reason for use: <u>Costia on coho salmon fry</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): <u>425 & 500 mL</u>	Total quantity of formulated product used in past year (specify units): <u>1,425 mL</u>	
Date(s) of treatment: <u>4/16 and 4/20</u>		Total number of treatments in past year: <u>2</u> <i>2 treatments on 1 tank 1 treatment on another tank</i>	
Maximum daily volume of treated water: <u>178 ft³</u>	Treatment concentration (specify units): <u>168 & 198 ppm</u>	Duration and frequency of treatment(s): <u>1 hour</u>	
Method of application:	<input checked="" type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input checked="" type="checkbox"/> Incubation building <u>tanks</u>	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name: <u>American Stockman Mixing Salt</u>		Generic Name: <u>Salt</u>	
Reason for use: <u>Fungus on caudal fins</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment: <u>50 lbs.</u>	Total quantity of formulated product used in past year (specify units): <u>150 lbs.</u>	
Date(s) of treatment: <u>6/10, 6/11, and 6/12</u>		Total number of treatments in past year: <u>3</u>	
Maximum daily volume of treated water: <u>216,000 gallons</u>	Treatment concentration (specify units): <u>0.0005%</u>	Duration and frequency of treatment(s): <u>4 hours</u>	
Method of application:	<input type="checkbox"/> Static Bath <input checked="" type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input checked="" type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: <u>Parasite-S</u>		Generic Name: <u>Formalin (37% Formaldehyde)</u>	
Reason for use: <u>Ichthyophthirius multifiliis</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): <u>4.3 gallons</u>	Total quantity of formulated product used in past year (specify units): <u>12.9 gallons</u>	
Date(s) of treatment: <u>8/17 and 8/19</u>		Total number of treatments in past year: <u>3</u>	
Maximum daily volume of treated water: <u>216,000 gallons</u>	Treatment concentration (specify units): <u>39.7 ppm</u>	Duration and frequency of treatment(s): <u>6 hours</u>	
Method of application:	<input type="checkbox"/> Static Bath <input checked="" type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input checked="" type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name: <u>Parasite-S</u>		Generic Name: <u>Formalin (37% Formaldehyde)</u>	
Reason for use: <u>External pathogens on steelhead kelts</u>			
<input checked="" type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment: <u>1.79 liters</u>	Total quantity of formulated product used in past year (specify units): <u>475 liters</u>	
Date(s) of treatment: <u>Feb - Oct 2021</u>		Total number of treatments in past year: <u>266</u>	
Maximum daily volume of treated water: <u>11,280 gallons</u>	Treatment concentration (specify units): <u>163.9 ppm</u>	Duration and frequency of treatment(s): <u>1 hour</u>	
Method of application:	<input type="checkbox"/> Static Bath <input checked="" type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input checked="" type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input checked="" type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: SLICE		Generic Name: emamectin benzoate	
Reason for use: freshwater copepod ectoparasites on steelhead kelt			
<input type="checkbox"/> Preventative/Prophylactic <input checked="" type="checkbox"/> As-needed	Total quantity of formulated product per treatment (specify units): 1.7 g	Total quantity of formulated product used in past year (specify units): 11.9 g	
Date(s) of treatment: July 20-26, 2021			Total number of treatments in past year: 1
Maximum daily volume of treated water: 0	Treatment concentration (specify units): 50 mg/kg fish/day	Duration and frequency of treatment(s): 7 day treatment (1.7 g per day)	
Method of application:	<input type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input checked="" type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input checked="" type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input checked="" type="checkbox"/> Other (describe): N/A	
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			
Brand Name:		Generic Name:	
Reason for use:			
<input type="checkbox"/> Preventative/Prophylactic <input type="checkbox"/> As-needed	Total quantity of formulated product per treatment:	Total quantity of formulated product used in past year (specify units):	
Date(s) of treatment:			Total number of treatments in past year:
Maximum daily volume of treated water:	Treatment concentration (specify units):	Duration and frequency of treatment(s):	
Method of application:	<input type="checkbox"/> Static Bath <input type="checkbox"/> Flow-through	<input type="checkbox"/> Medicated Feed <input type="checkbox"/> Other (describe):	
Location in facility chemical was used (check all that apply):	<input type="checkbox"/> Raceways <input type="checkbox"/> Incubation building	<input type="checkbox"/> Ponds <input type="checkbox"/> Off-line settling basin <input type="checkbox"/> Other (describe):	
Where did water treated with this chemical go? (check all that apply):	<input type="checkbox"/> Discharged w/o treatment <input type="checkbox"/> Settling basin	<input type="checkbox"/> Septic System <input type="checkbox"/> Publicly owned treatment works <input type="checkbox"/> Other (describe):	

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments-Formalin (costa)		
Tank Volume	89 ft ³	Liters
Desired Static Bath Treatment Concentration	197.6 ppm	µg/L
Volume of Product Needed	500 mL	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.0000038 ppm Active Ingredient: 0.0000038 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	13,492,692 gallons	Specify Units
Maximum % of Facility Discharge Treated	0.01%	% of Total Discharge

Flow-Through Treatments-Formalin (ich)		
Tank Volume	1498 ft ³	Liters
Calculated Flow Rate	1.077	Liters/Minute
Duration of Treatment	360	Minutes
Desired Flow-Through Treatment Concentration of Product	39.7 ppm	µg/L
Amount of Product to Add Initially	N/A	Liters Product
Amount of Product to Add During Treatment	45.3 mL/Minute	
Total Volume of Product Needed	4.3 gallons	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.00002 ppm Active Ingredient: 0.00002 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	16,669,440 gallons	Specify Units
Maximum % of Facility Discharge Treated	0.65%	% of Total Discharge

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments - Oxydine	
Tank Volume	7.18 Liters
Desired Static Bath Treatment Concentration	73.7 ppm $\mu\text{g/L}$
Volume of Product Needed	56 mL Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.0000068 ppm Active Ingredient: 6.8×10^{-8} ppm Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	15,929,480 gallons Specify Units
Maximum % of Facility Discharge Treated	0.00125% % of Total Discharge

Flow-Through Treatments - Formalin (adult brood stock)	
Tank Volume	287,200 Liters
Calculated Flow Rate	1,077 Liters/Minute
Duration of Treatment	60 Minutes
Desired Flow-Through Treatment Concentration of Product	199.2 ppm $\mu\text{g/L}$
Amount of Product to Add Initially	N/A Liters Product
Amount of Product to Add During Treatment	227 mL/Minute
Total Volume of Product Needed	12.9 Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.000084 ppm Active Ingredient: 0.000084 ppm Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	8,529,840 gallons Specify Units
Maximum % of Facility Discharge Treated	0.21% % of Total Discharge

Aquaculture Drugs and Chemicals (cont'd)**Additional Reporting Requirements for Water-Borne Treatments**

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments		
Tank Volume		Liters
Desired Static Bath Treatment Concentration		µg/L
Volume of Product Needed		Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: Active Ingredient:	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day		Specify Units
Maximum % of Facility Discharge Treated		% of Total Discharge

Flow-Through Treatments - Formalin (Keltan)		
Tank Volume	9,129	Liters
Calculated Flow Rate	177.9	Liters/Minute
Duration of Treatment	60	Minutes
Desired Flow-Through Treatment Concentration of Product	163.9 ppm	µg/L
Amount of Product to Add Initially	N/A	Liters Product
Amount of Product to Add During Treatment	29.3	mL/Minute
Total Volume of Product Needed	1.79	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.000037 ppm Active Ingredient: 0.000037 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	8,889,886 gallons	Specify Units
Maximum % of Facility Discharge Treated	0.06%	% of Total Discharge

Changes to the Facility or Operations

Describe any changes to the facility or operations since the last annual report.

None

Signature and Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly evaluate and gather the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sara E Reese	Assistant Hatchery Manager
Printed name of person signing	Title
<i>Sara E Reese</i>	01/05/2022
Applicant Signature	Date Signed

Submittal Information

Send the complete, signed information, along with any attachments, to the following address:

U.S. EPA Region 10, OWW-191
 Washington Hatchery Annual Report
 1200 Sixth Avenue, Suite 900
 Seattle, WA 98101-3140

Water Borne Treatment calculations

Fall bath - Oxadine

$$\text{Tank V} = 2 \text{ gallons} \times \frac{3.59 \text{ L}}{\text{gall}} = 7.18 \text{ L}$$

$$\text{Desired [I] and V of product needed} = 56 \text{ mL} = \frac{2 \text{ gallons} \times 73.7 \text{ ppm} \times 0.0038}{0.01 (1\% \text{ iodine})}$$

Maximum effluent concentration of solution

$$\text{MEC} = 73.7 \text{ ppm} \times (100 \text{ trays} \times 56 \text{ mL}) \times \frac{1 \text{ gallon}}{3785 \text{ mL}} = \frac{412,720}{3785} = 0.000068$$

$$\frac{(100 \text{ trays} \times 2 \text{ gallons}) + 15,929,280}{15,929,480} \text{ ppm}$$

minimum V of total
water discharged

water used on
08/25/2021

Maximum effluent concentration of active ingredient

$$0.0000068 \text{ ppm} \times 0.01 = 6.8 \times 10^{-8} \text{ ppm}$$

↑ 1% iodine

Maximum % of Facility Discharge treated

$$\frac{200}{15,929,480} \times 100 = 0.00125\%$$

T - Formalin (adult broodstock)

$$\text{V of product to add (mL)} = 300 \text{ gpm} \times 60 \text{ minutes} \times 199.2 \text{ ppm} \times 0.0038 = \frac{13625 \text{ mL}}{60 \text{ mins}} = \frac{227 \text{ mL}}{\text{min}}$$

$$\text{MEC} = \frac{199.2 \text{ ppm} \times 3.6 \text{ gallons}}{18,000 \text{ gallons} + 8,511,840} = \frac{717.12}{8,529,840} = 0.000084 \text{ ppm}$$

Maximum % of Facility Discharge Treated

$$\frac{18,000}{8,529,840} \times 100 = 0.21\%$$

T- Formalin (KCHS)

$$V \text{ of product to add (mL)} = 47 \text{ gpm} \times 60 \text{ minutes} \times 163.9 \text{ ppm} \times 0.0038 = \frac{1307.9 \text{ mL}}{60 \text{ mins}} = \underline{21.8 \text{ mL}}$$

$$MEC = 163.9 \text{ ppm} \times 7.15 \text{ L} \times 1 \text{ gallon}$$

$$\frac{3.59 \text{ L}}{5086 \text{ gallons} + 8,884,800} = \frac{326.4}{8,889,886} = 0.000037 \text{ ppm}$$

$$\frac{5086}{8,889,886} \times 100 = 0.06\%$$

Maximum % of Facility Discharge treated

$$\frac{5086}{8,889,886} \times 100 = 0.06\%$$

$$\frac{5086}{8,889,886}$$

T- Formalin (ICH)

$$V \text{ of product to add (mL)} = 300 \text{ gpm} \times 6 \text{ hours} \times 60 \text{ minutes} \times 39.7 \text{ ppm} \times 0.0038 = \frac{16292.88}{6 \text{ hours} \times 60 \text{ mins}} = 45.26 \text{ mL/min}$$

$$MEC = \frac{39.7 \text{ ppm} \times 4.3 \text{ gallons} \times 2 \text{ raceways}}{108,000 \text{ gallons} + 16,561,440} = \frac{341.42}{16,669,440} = 0.00002 \text{ ppm}$$

Maximum % of Facility Discharge treated

$$\frac{108,000}{16,669,440} \times 100 = 0.65\%$$

$$\frac{108,000}{16,669,440}$$

Retic Bath - Formalin (Costia)

Desired concentration and V of product needed

$$500 \text{ mL} = 6666 \text{ gallons} \times \text{trt. [C]} \times 0.0038$$

$$\text{trt [C]} = 197.6 \text{ ppm}$$

Maximum effluent concentration of solution & active ingredient

$$MEC = 197.6 \text{ ppm} \times 500 \text{ mL} \times 2 \text{ tanks} \times 1 \text{ gallon}$$

$$\frac{3785 \text{ mL}}{(6666 \text{ gallons} \times 2 \text{ tanks}) + 13,491,360} = \frac{52.21}{13,492,692} = 0.0000038 \text{ ppm}$$

$$\frac{1332}{13,492,692} \times 100 = 0.0099\%$$

Maximum % of Facility Discharge treated

$$\frac{1332}{13,492,692} \times 100 = 0.0099\%$$

$$\frac{1332}{13,492,692}$$